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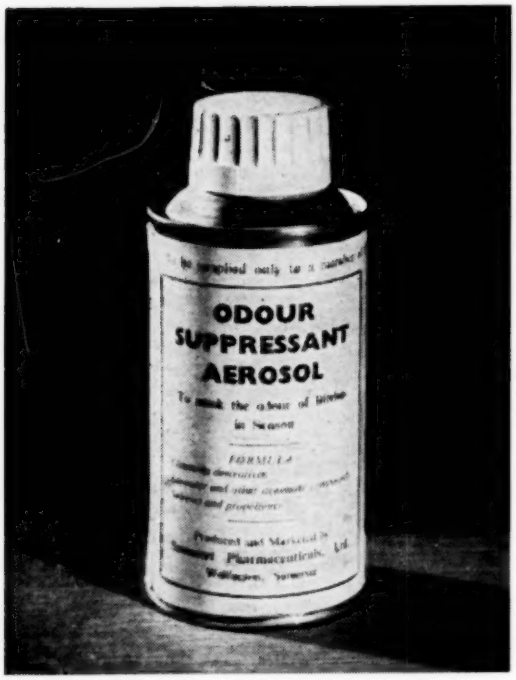

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THE VETERINARY RECORD

Founded by William Hunting, F.R.C.V.S., in 1888

Volume 72
No. 20

SATURDAY, MAY 14th, 1960

7 Mansfield Street,
London, W.1.
Museum 6541

FAO Conference on Veterinary Education April 25th—30th

IT well may be that never before, in the history of the profession, has so large, so representative, and so successful an international conference been held on this, the most important of all subjects so far as veterinary surgeons are concerned. It was an honour that the event was held in London, at the invitation of H. M. Government, that the prime architect was Sir Thomas Dalling, a past Chief Veterinary Officer, while the present holder of that office, Mr. J. N. Ritchie, C.B., was elected chairman for the entire week. The British Veterinary Association was represented by the President, Mr. S. L. Hignett, and by the Hon. Treasurer, Dr. E. Cotchin. The Registrar and members of the staff of the Royal College provided help in the organisation of the conference, in association with a member of the Ministry's staff, and also arranged information services which were much appreciated by the delegates. The United Kingdom delegates were: Dr. R. E. Glover, Professor H. G. Lamont, Mr. R. S. Marshall, Professor C. W. Ottaway, Professor L. P. Pugh, Mr. J. N. Ritchie, Professor A. Robertson, Professor W. L. Weipers and Professor J. G. Wright.

Last week a Report and Recommendations (subject to final drafting) were provided, from which the following extracts are quoted, the draft Recommendations being given in full. When these documents have been edited at FAO headquarters it is understood that they will form the basis of further discussion leading ultimately to the publication of an authorised text.

After a general introduction the Report considers the various sessions in turn. At each session working papers, circulated in advance, were read and discussed.

Education and Training of Veterinarians to Meet Regional Requirements

There was complete agreement on the desirability of the ultimate establishment of veterinary schools to serve every area of the world. At the present time one of the major obstacles is the lack of adequately trained teaching staff. The world shortage of veterinarians is nowhere more noticeable than in this sphere and this shortage constitutes a serious impediment to the establishment of new schools at the requisite high level.

One method of overcoming this difficulty is to train suitable candidates from the developing countries in overseas schools. Such education, however, only becomes of value when the graduates add to it the necessary specialised knowledge of the particular conditions in their own regions.

There was general agreement on the necessity for a high standard of preliminary education; the entrance examination level being the same as that required for entry to medical and other schools of comparable character. The consensus of opinion was that a minimum of five years was necessary for veterinary undergraduate training. This would include education in the basic sciences and it was noted that, in some cases where students had reached the necessary standard prior to entry to the veterinary school, consideration was being given to a lengthening of the normal four years' period for clinical and pre-clinical subjects. While many delegates considered that the longer period was desirable, the general feasibility of this on economic and social grounds at the present time was open to question.

It was emphasised by many delegates, and fully approved, that an essential factor in modern veterinary education was its intimate association with research. This provided a stimulus to students and teachers alike, and could be of great value to the economy of the individual country.

The nature of the veterinary profession as an essential service to the comunity should be stressed in all aspects of training.

The meeting considered in close detail the question of the teaching of animal husbandry in veterinary schools. This is, and always has been, a fundamental part of every veterinary curriculum. It is accepted that a thorough grounding in all aspects of animal husbandry is a necessity in the training of the complete veterinarian, since he must have a full knowledge and appreciation of all matters relating to animals in health and disease. The fact that workers in other

disciplines may also be engaged in this field does not alter the position of the veterinarian.

Students must receive thorough instruction in animal management, in flock and herd management and in applied animal husbandry, comprising animal genetics, breeding, nutrition and housing. All of these have important connotations in the causation, prevention and control of disease, and in the promotion of maximum health by the provision of optimum environmental conditions. Attention was drawn to the desirability of all veterinary schools having facilities for the field training of students in general animal husbandry and practical livestock management methods.

Specialised Training—Undergraduate and Post-graduate

Undergraduate specialisation was not generally approved, though certain subjects might receive emphasis in view of their relatively greater importance in the particular region. Most present-day curricula were too crowded to allow of specialisation. It was agreed that if the training for the basic veterinary qualification were at a sufficiently high level, qualified veterinarians from the developing countries could benefit from post-graduate courses of study in overseas countries. There was thought to be a need for additional diploma courses in the more technically advanced countries to meet this requirement.

In the developing countries generally, there is an urgent need for qualified veterinarians who have taken post-graduate training in special skills such as parasitology, animal husbandry and reproduction. Such requirements emphasise the fact that adjustments to the basic undergraduate courses are not always keeping pace with advances, for example, in epizootiology, public health and food hygiene.

There is a serious shortage of veterinarians to conduct basic and applied research, as in other fields. Stress was placed upon the necessity for financial support for basic research wherever any degree of specialisation is required.

It was not thought to be feasible at the present time to encourage developing countries to establish post-graduate as well as undergraduate facilities. The international solidarity of the veterinary profession was noted and delegates felt that schools in the more technically advanced countries could examine the possibility of providing greater guidance and assistance to the developing countries in the provision of post-graduate training in a wide range of subjects.

The meeting gave detailed attention to particular fields which were of growing importance to veterinary science. Veterinary public health was considered to be justifiably a subject for post-graduate study and should comprise a course of at least one year's duration. Such courses have already been established in a number of places, usually at universities which had schools of public health, together with veterinary and medical schools. FAO and WHO co-operate in arranging meetings for the exchange of views on this rapidly developing subject.

Veterinary education in the field of radiobiology was reviewed in the light of a working paper on the subject, and the statements of delegates from the United States. The lead which has been taken by the veterinary profession in all branches of this new science was noted with satisfaction, but it was not thought to be practicable at the present time to add it as another subject to the already over-burdened curriculum. It was thought that ultimately the basic science requirements might include the fundamentals of radiation biology and bio-statics. Some schools were already using radioactive isotopes as a valuable tool in teaching and research. On the whole, however, the veterinary profession was failing to exploit such aids to the full, and it was felt that schools should consider modification of the extant curricula to permit the inclusion of selected aspects of atomic physics, radio-chemistry and radiobiology. For example radioactive tracers can make a notable contribution to the teaching of physiology, pharmacology and toxicology.

There was unanimous agreement as to the value of "refresher" courses, brief spells of in-service training, and short specialised courses in specific subjects. Continued self-education is a duty and an obligation on every veterinarian.

Some criticism had been levelled against the orthodox pattern of teaching in veterinary schools, and it might be considered with some justification that students were expected to amass too much data, relatively uninteresting and unrelated to other disciplines. The meeting heard with interest some details of an attempt which was being made in the United States of America to remedy these defects.

In connexion with the number of students attending classes, the meeting was of the opinion that, in order to attain the best results, this should not exceed thirty and should preferably be much lower. The attempt described above to break away from orthodox teaching methods visualised classes as small as five students per teacher.

Education and Training of Lay Staff

The meeting reviewed in some detail the present methods of the use of lay personnel in various countries for the performance of veterinary duties, and also considered the nature of the training required. There is a wide range of national conditions ranging from countries which have a sufficiency, or even a superfluity, of veterinarians and which, therefore, employ little or no lay assistants, to developing countries with few veterinarians and large livestock populations. In these latter countries, the use of properly trained veterinary auxiliaries is essential to progress and is likely to continue to be so in the forseeable future.

Meat Inspection

There was general agreement on the question of the employment of suitably trained laymen for duties of meat inspection, in which field they perform valuable work in a wide variety of countries. In most cases lay meat inspectors operate only under direct veterinary control, the ultimate responsibility

for the decision on fitness for food resting with the veterinarian. The training of lay meat inspectors must be largely of the in-service character, and need not be at a veterinary school. A number of delegates stressed the importance of meat inspection as a subject in the veterinary curriculum and also as a desirable subject for post-graduate specialisation for veterinarians who may intend to follow a full-time career and who would be responsible for the general hygiene of abattoirs and the supervision of meat inspectors, as a part of the broad field of veterinary public health. It was stressed that only the veterinarian is properly qualified to examine animals for fitness and freedom from disease prior to slaughter.

In the field of artificial insemination the principle of veterinary supervision of all clinical and laboratory techniques was accepted. Adequate veterinary supervision of artificial insemination centres and of the activities of lay inseminators was considered to be essential.

Extensive vaccination programmes and other disease control measures in many of the developing countries present special problems in which the utilisation of lay services, properly controlled and supervised, are essential to progress. Examples were quoted in which very large numbers of cattle, sheep, goats and camels were maintained on a nomadic basis. An economically impossible number of qualified veterinarians would be required to deal with the problems of disease control thus presented, and the employment of lay personnel in different categories has proved in practice to be an economically feasible and practicable alternative. In the case of men in the higher levels there is the risk that attempts may be made to enter fields of work beyond their technical competence. This emphasises the need for adequate and specialised supervision by qualified veterinary officers. This question of control is the key to the problem. There must always be a sharp differentiation between lay training and lay assistants on the one hand, professional training and the qualified veterinarian on the other.

The meeting considered the titles which should be given to lay auxiliaries and was in agreement that the word "veterinary" should be avoided in describing such personnel. It was a matter of prime importance that nothing should be done which might lead to the recognition of a sub-profession of "pseudo-veterinarians."

Establishment of an International Panel on Veterinary Education

The chairman, having requested the views of the secretariat on possible future developments, Dr. K. V. L. Kesteven, Director of Animal Production and Health Division of FAO, explained to the meeting the method by which the expert panels and committees of FAO and WHO function, and the nature of the co-operation between these two agencies in the general field of animal health.

Sir Thomas Dalling reviewed the operations of FAO in the field of veterinary education and outlined the possibilities for future international developments. He stated that if, as is visualised, WHO is to co-operate with FAO, further results might be achieved by follow-up action to the recommendations of the present meeting, and, through the establishment of a special committee or panel, the necessary attention could be paid to details.

The initial duties of such a panel would include:—

(1) Consideration of the standards of veterinary education mutually acceptable between countries and regions;

(2) Examination of the subjects to be taught, the time to be spent on individual subjects and the division between practical and theoretical work;

(3) The provision of guidance for new veterinary schools on systems, examinations, teachers, undergraduate or post-graduate teaching, types of post-graduate classes, diplomas, degrees, etc.

(4) The preparation of material for publication on veterinary education, with co-operation by leading world authorities.

Much of the work of the panel would be done by correspondence and by the correlation of information at the FAO and WHO headquarters. The present meeting was the first such international meeting to be held. It should be followed by another in 3 to 4 years' time, which would have the benefit of the work of the panel during the intervening period.

It was the unanimous recommendation of a plenary session of the conference that a panel should forthwith be established to consider and report on veterinary education, with a view to the production of a publication on the subject and a future international meeting in approximately 3 years' time.

Other Matters in Connexion with Veterinary Education

The meeting reviewed a number of matters which arose from items which had already been discussed. Among these was the question of possible sources of funds for use in implementing the recommendations relating to specific educational projects, especially in the developing countries. In some countries no funds whatever were available for this purpose, in others the funds were meagre.

The meeting was informed that a report was pending from a United Kingdom committee which had been studying the problem and which had a close identity of views with the present meeting. Lack of funds was a major obstacle to progress in veterinary education. It was urged that the proposed panel should be prepared to offer guidance and direction to countries, and also to trusts, foundations and any national or international bodies with projects in veterinary education.

The view was expressed that, however willing the established schools might be to offer facilities for the training of students from overseas, there were serious financial considerations which could not be ignored. These schools could accomplish much more in this regard if there were additional funds available for the purpose. In one school in the United States it was estimated that the operating costs involved to

the institution were about 3,000 dollars per foreign student in post-graduate study.

Conference Recommendations

At the close of the conference the following draft Recommendations were approved :—

1. Veterinary schools should be established in countries or regions to meet their requirements for veterinary education; veterinary education should be carried out in universities, or in schools with similar standards and autonomy; the educational level for entrance to a veterinary college should be at least up to the standard of other Faculties such as medicine; the course of training should be for a minimum of 4 years following education in the basic sciences of physics, chemistry and biology.

2. The teaching of pre-clinical subjects should be at a similar level to that of medical students. In the establishment of new veterinary schools this standard should be introduced and maintained. Suitable facilities for instruction in animal husbandry and applied veterinary medicine, including field stations at which students might reside for considerable periods, and ambulatory clinics, should be provided. The emphasis given to applied subjects should vary according to the requirements of the region concerned and the curricula should be arranged accordingly; change of emphasis in curricula should be made in accordance with developments in a country or region and new subjects should be introduced as required as early as possibjle. For this reason regular contacts between authorities officially responsible for applied veterinary medicine and the veterinary faculty should be established.

3. Veterinary teachers should be employed on a full-time basis except for a few subjects which are more conveniently taught by experts from outside the profession; encouragement should be given to visiting and local research workers and other specialists to lecture on their special subjects; the continuing training of teachers should receive encouragement. The ratio of the number of students to teachers should be such that small groups of students could obtain adequate practical instruction.

4. Much importance should be attached to the combination of research and teaching in veterinary colleges, and the necessary facilities for both are essential. The teaching schedule should be so arranged that time is available for research.

5. In order to take full advantage of the education and training possessed by veterinarians, appropriate use should be made of specially trained lay personnel for certain duties though always under supervision of veterinarians. In countries where there are insufficient veterinarians lay persons may usefully be employed in connexion with some aspects of disease control programmes, artificial insemination, food inspection, livestock development schemes, etc. The title of these assistants should in no case include the word " veterinary." Only personnel who have undergone the requisite amount of training should be employed on such duties. The training and employment of adequate lay personnel for technical assistance in veterinary laboratories is essential.

6. Specialisation should not become a part of undergraduate training, although undoubtedly, some subjects will receive more emphasis in some schools than in others; the undergraduate course should fit graduates for the whole range of professional duties as well as for post-graduate specialisation. Encouragement should be given to graduates to carry out special research work leading to higher degrees; in this way research workers and teachers in specific disciplines will become available.

7. Attendance at post-graduate courses of instruction leading to the award of diplomas in some branches of veterinary work including animal husbandry and veterinary public health should be encouraged. The holding of special short refresher courses, seminars and symposia should also be an important activity of veterinary institutions in order to bring veterinarians up to date in techniques and in current information.

8. At least until their own schools are well established, selected persons from developing countries should be afforded facilities by the older-established veterinary schools.

9. Governments should ensure that the remuneration and conditions of service of veterinarians are of a standard, when compared with those of similar professional personnel, sufficient to attract suitable young people to enter the veterinary profession.

10. The Director-General of FAO should be invited to establish an international panel or committee on veterinary education, jointly with the World Health Organisation; this panel should be required to study all details concerned with veterinary education in the various regions of the world. It should produce reports for use in reviewing veterinary education in all countries, including countries in which the establishment of veterinary schools is being considered. The panel would be available to provide advice through FAO to organisations, foundations and trusts interested in providing funds for veterinary education.

SUPPLEMENT TO R.C.V.S. LIBRARY CATALOGUE

In order to assist the Royal College library, which is of course the library of the whole profession, it was decided to print additions to the catalogue in the form of a supplement to THE VETERINARY RECORD. This can easily be detached from the centre of this issue, and when folded and cut at the edges will make a self-contained publication. We hope it will be of use to all those who make use of the library's admirable services, among whom are the editorial staff of THE RECORD. We take this opportunity of expressing publicly our thanks for all the help the librarian and her colleagues give us.

Disc Protrusion in the Cat: Age Incidence of Dorsal Protrusions

BY

A. S. KING and R. N. SMITH

Department of Veterinary Anatomy,
University of Bristol

SUMMARY.—In a post-mortem *survey of 60 cats of known age dorsal protrusions have been found mainly in old cats over 15 years of age, multiple protrusions being common in the cervical region and in the region from T 10 to S 1. Between a quarter and a third of the protrusions at this age were of type 1 (perforated); the majority of these type 1 protrusions occurred between T 10 and S 1. The youngest cat with a protrusion was 6 years old. The few protrusions which occurred between 6 and 14 years usually affected only a single disc and were almost always cervical protrusions of type 2. If protrusions cause clinical symptoms in the cat they should occur mainly in senile cats, and would be rather more likely to affect the hind limb than the fore limb, because of the relatively frequent occurrence of type 1 protrusions in old age especially from T 10 to S 1. In the middle-aged cats cervical symptoms, mainly mild, might also be encountered. Since in the investigation so many protrusions were seen which apparently had caused no objective symptoms, caution is necessary when attributing paresis or paralysis to protrusions found at a* post-mortem *examination, particularly in senile cats.*

Introduction

IN our first survey of dorsal protrusions from the intervertebral disc of 100 cats (King & Smith, 1958; King, Smith & Kon, 1958) the ages of the animals were not known. It was decided to make a second survey, this time of cats of known age, to find out the ages at which dorsal protrusions occur in this species. The results may help the recognition of clinical cases of disc protrusion in the cat.

Materials and Methods

Sixty cats were investigated. Their ages were obtained from the owners who brought them in for destruction. None was known to be a clinical case of disc protrusion or of any similar condition. The majority were accepted at random, but some selection was necessary to balance the various ages. The number of cats of each age is shown in Fig. 1.

Since owners make mistakes about the ages of their cats, and also because there was a shortage of animals of certain ages, the cats were arranged into the 4 age groups 1 to 5, 6 to 10, 11 to 14 and 15 to 20 years; these age groups were called young, early-middle-aged, late-middle-aged, and senile, and contained 17, 19, 11, and 13 cats respectively. The group of 17 young cats is unduly weighted by 10 juvenile cats between 1 and 2 years old.

In every cat the dorsal aspect of each disc was examined for protrusions. After this every disc was cut transversely and the cut surface was examined. The protrusions were divided into those of type 1 in which the annulus fibrosus was completely perforated, and those of type 2 in which the annulus was bulging. A dissecting microscope was used throughout. The coccygeal discs were not examined. Most of the cats were fixed in formalin, but a few were examined fresh.

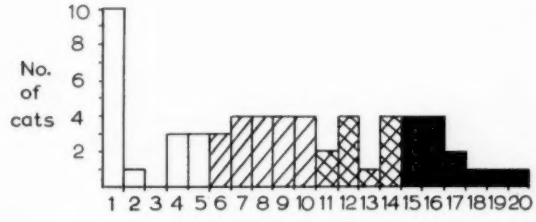


FIG. 1.—To show the ages of the 60 cats investigated, and the 4 age groups into which they have been arranged. Age groups: unshaded, young; hatched, early-middle-aged; cross-hatched, late-middle-aged; black, senile.

Results

Twenty-five cats had dorsal protrusions. Sixty-seven discs were affected, 17 of them by protrusions of type 1.

Incidence of protrusions in the 4 age groups. There were no dorsal protrusions in the young cats, but they were found in about a third of the early-middle-aged cats and in about half of the late-middle-aged cats (Fig. 2). Every senile cat had them and in fact these senile cats contained 52 of the affected discs. The youngest cat with a dorsal protrusion was 6 years old; after this, protrusions were present in cats representing each year up to 20 except for the four 10-year-old cats.

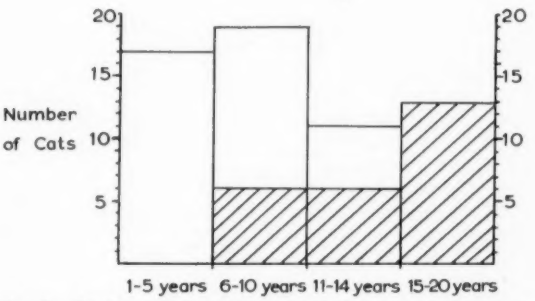


FIG. 2.—To show the incidence of dorsal protrusions in the 4 age groups. Hatched areas represent cats with protrusions.

Incidence of single or multiple protrusions in the 4 age groups. In 5 of the 6 early-middle-aged cats with protrusions only a single disc was affected (single protrusion); the other cat had 2 discs with protrusion (multiple protrusion). In the late-middle-aged group, 4 cats had a single protrusion and 2 had 2 discs with protrusion. Of the senile cats only 2 had a single protrusion and 11 had multiple protrusions : of those with multiple protrusions 4 had 2 discs with protrusion, and 3 had 6; the other 4 cats had respectively 3, 4, 8, and 9 discs with protrusion.

The regions of the vertebral column affected at the various ages. In the early-middle-aged cats all the protrusions were from cervical discs (Fig. 3). In the late-middle-aged cats all but one were cervical; the other was in the region between the tenth thoracic and first sacral vertebra. In the senile cats, there were 25 protrusions in the cervical region and 23 in the region from T 10 to S 1; there were also 4 protrusions in the region of the conjugal ligament, *i.e.* between the first and tenth thoracic vertebrae.

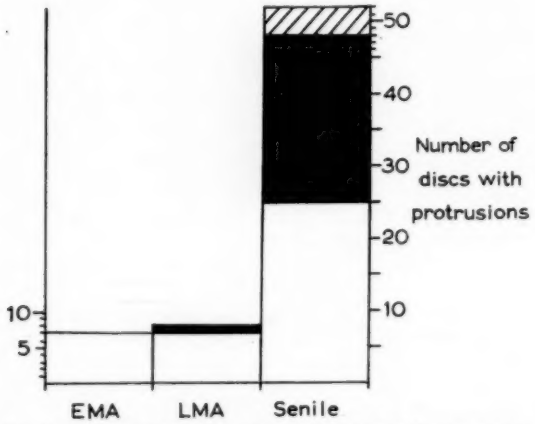


FIG. 3.—To show the distribution among the 3 older age groups of protrusions in the cervical region (unshaded), the region from T 10 to S 1 (black), and the conjugal ligament region (hatched). EMA = 6 to 10 years, LMA = 11 to 14 years, senile = 15 to 20 years old.

Incidence of protrusions of types 1 and 2 in the 4 age groups. Of the 17 protrusions of type 1, one occurred in an early-middle-aged cat and one in a late-middle-aged cat (Fig. 4), both being in cervical discs; the youngest cat with a type 1 protrusion was 9 years old. The other 15 type 1 protrusions were located in 5 of the senile cats; of these 10 were in the region from T 10 to S 1, 2 were cervical, and the other 3 were in the region of the conjugal ligament.

Of the 50 discs with protrusions of type 2, 23 were classified as having large protrusions and the rest as having only small protrusions of type 2. Protrusions of both sizes occurred in somewhat similar proportions in all of the 3 age groups which had protrusions (Fig. 4).

Discussion

The youngest cat with a dorsal protrusion was 6 years old. About one third of the cats between 6 and 10 years, about half of those between 11 and 14, and all the senile cats between 15 and 20 years had dorsal protrusions. The senile cats accounted for 52 out of the total of 67 discs with protrusions. Dorsal protrusion is therefore essentially a senile phenomenon. Up to 14 years old the protrusions were mainly single (*i.e.* there was only one disc with a protrusion); from 15 onwards they were mainly multiple (*i.e.* there was more than one disc with a protrusion), the greatest number of discs with protrusion in any one cat being 9. Protrusions in the cats less than 15 years old were almost always cervical, but in the senile cats there were nearly as many protrusions in the region from T 10 to S 1 as in the cervical region. Protrusions of type 1, completely perforating the annulus fibrosus, were rare at ages below 15. About a third of the senile cats had them, however, and in this group they accounted for between a quarter and a third of all the discs with protrusions; the majority were in the region from T 10 to S 1. Large and small protrusions of type 2 occurred in somewhat similar proportions in both middle-aged and senile cats.

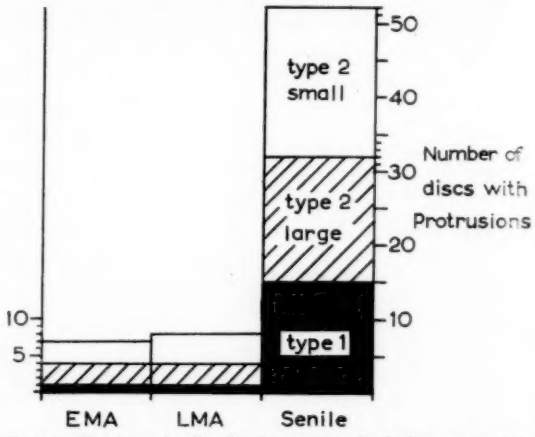


FIG. 4.—To show the distribution among the 3 older age groups of type 1 protrusions, large protrusions of type 2, and small protrusions of type 2. EMA, LMA, and senile as in Fig. 3.

If protrusions cause clinical symptoms in the cat then these symptoms should be expected mainly in senile cats of about 15 years or more; symptoms of cervical protrusion could occur, but symptoms affecting only the hind legs seem somewhat more likely. This is because in the senile cats perforating protrusions of type 1 were relatively numerous, especially from T 10 to S 1. From experience of the relatively severe effects of protrusions of type 1 in the dog it is reasonable to suspect that this type of protrusion may be more dangerous in the cat also.

It seems possible that symptoms of disc protrusion could also happen occasionally in middle-aged cats from about 6 to 14 years old. Our observations suggest that they would almost always arise from a cervical protrusion. Usually they would not be severe, since most of the protrusions at this age were

(*Concluded at foot of adjacent col.*)

A Field Trial of Amicarbalide—A New Babesicide

BY

C. G. L. BEVERIDGE
May & Baker Ltd., Dagenham, Essex

AND

J. WILLIS THWAITE, and G. SHEPHERD
Liskeard, Cornwall

SUMMARY.—Amicarbalide (3:3'-diamidinocarbanilide), a new babesicide effective in the treatment of bovine redwater due to infection with Babesia divergens*, is described. Evidence is presented which suggests that the compound offers advantages over existing treatments.*

Details are given of studies to determine local and systemic tolerance and therapeutic activity in natural infections in cattle. Recommendations are made for treatment in areas where redwater is endemic.

Introduction

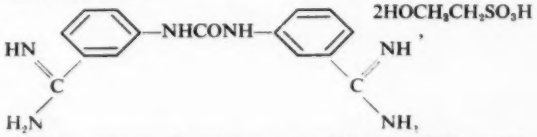
BRITISH redwater is a disease of cattle caused by the protozoan parasite *Babesia divergens* which is transmitted in nature mainly by ticks of the species *Ixodes ricinus*. Redwater is prevalent in widely scattered areas throughout the regional distribution of the vector, occurring mainly in spring and autumn, the seasons of greatest tick activity.

Mack (1957) has reviewed the extensive literature relating to the chemotherapy of this and allied infections.

For many years the preferred treatment for redwater has been the subcutaneous administration of solutions of quinuronium sulphate B.Vet.C. Given at the recommended dose of 1 mg. per kg. or thereabouts, quinuronium sulphate is curative in a high proportion of cases but its use is frequently associated with untoward reactions which include salivation, hypotension and tachycardia. Fatalities may occur. The toxicity of the compound is its main disadvantage, particularly in heavy animals where in practice it may be necessary to reduce dosage, to the detriment of therapeutic efficacy.

The activity against babesial infections of various disubstituted ureas and in particular carbanilides, has been known for some years (*loc. cit.*). In a programme of research into compounds containing both urea and amidine systems, 3:3'-diamidinocarbanilide (amicarbalide) was prepared and found to be of particular promise against Babesia species in laboratory animals and splenectomised calves, in which it was also shown to be markedly less toxic than quinuronium sulphate (Ashley, Berg & Lucas, 1960; and Lucas, 1960). The present paper is a record of tolerance and activity studies in cattle (C.G.L.B.) and subsequent field trials (J.W.T., G.S. and others) which were undertaken as an extension of this work

Amicarbalide, prepared for trials in the form of the di-isethionate, may be represented structurally as follows:—



The compound occurs as a white crystalline solid, melting point 209° C., which dissolves readily in water up to a concentration of nearly 100 per cent. w/v at 25° C.

Aqueous solutions were prepared for trial in concentrations of 20 per cent. and 40 per cent. w/v. These were later superseded by 50 per cent. w/v solutions in multi-dose containers of 50 ml.

Methods

The local and systemic tolerance of cattle to

Disc Protrusion in the Cat.—*Concluded.*

of type 2. The presence, however, of the occasional type 1 protrusion in the neck in middle-aged animals warns of the chance of more severe symptoms.

When considering the possible clinical symptoms of disc protrusion in this species it must be remembered that many of the cats in this investigation had protrusions but not one had been suspected of being a clinical case. As we pointed out in a previous paper (King & Smith, 1960) it is likely that the large majority of protrusions in this species, as in the dog and in man, never cause objective symptoms. Considerable caution is necessary in attributing locomotory disturbance to protrusions found at a *post-mortem* examination. This is specially true for old cats, for the chances are that most cats over about 15 years will have one or even several protrusions.

Acknowledgments.—We would like to thank Professor C. W. Ottaway for his support. We are much indebted to our colleagues in practice in this city for providing us with cats of known age.

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* Davies, S. F. M., Joyner, L. P., and Kendall, S. B., in a paper (*Ann. trop. Med. Parasit.*, 1958, **52,** 2) entitled "Studies on *B. divergens* (M'Fadyean & Stockman, 1911)," described morphological differences between babesia isolated from a case of bovine redwater in Britain and a specimen of *Babesia bovis* obtained from cattle in Yugoslavia. They suggested that the name *B. divergens* (M'Fadyean, J., & Stockman, S., 1911, *J. comp. Path.*, **24,** 340) be retained for the organism commonly found in Britain. In the present paper this name is used in place of the more familiar but probably inappropriate term *B. bovis*.

parenteral injections of amicarbalide was assessed in adult dairy stock destined for the knacker. The compound was given by subcutaneous or intramuscular injection in a range of doses from 5.0 to 20.0 mg. per kg., using solutions of 20 per cent. and 40 per cent. w/v concentration. Local reactions were assessed by observation and palpation. Systemic responses were gauged by the demeanour of the animal and its rectal temperature and pulse. Slaughtered at varying times after treatment, the animals were examined for tissue changes which could have been due to the action of the drug.

The therapeutic activity of amicarbalide was investigated in the first instance in naturally occurring cases of redwater in an area of South-west England where the disease is endemic. A standard dose of 5 mg. per kg. was given by injection under the skin of the brisket and the site was massaged.

Diagnoses were made on clinical grounds and confirmed where possible by examination of stained blood films. In two instances where a prolonged search failed to disclose parasites, the clinical picture was judged to be sufficiently typical to establish the diagnosis of redwater.

The physical state of the patients was followed throughout the course of treatment with special reference to the pulse, the colour of the vaginal, palpebral and buccal mucous membranes and the colour and consistency of the urine and faeces. The 12 patients comprised 3 yearlings, 5 heifers (one 6 months pregnant, one near term), 2 steers and 2 in-calf cows (one 5 months pregnant, one at term).

Results

The results of the tolerance tests are depicted in Table I.

Local tolerance was good, particularly when the 20 per cent. w/v solution was used. Systemic tolerance was also satisfactory but certain transient side-effects were noted. Although animal 1, which received a dose of 5 mg. per kg. by subcutaneous injection did not lose appetite, the rest, in varying degrees, were dull and cachectic for 6 to 9 hours after treatment. Animals 5 and 6, which received 20 mg. per kg., were distressed and somewhat inco-ordinate in their movements for several hours but had recovered completely after 24 hours. *Post-mortem* examination revealed no abnormalities which could be attributed to treatment

The results of the therapeutic tests are shown in Table II.

Animals 1 and 3 were presented in a state of advanced anaemia with severe dehydration; animal 1, a heifer only 18 months old and heavily in-calf, was also icteric. Both died within a few hours of treatment. Nine beasts recovered after one treatment with amicarbilide at 5 mg. per kg. whilst the tenth responded to a single dose of 10 mg. per kg. No relapses were observed during a 3-week period of observation and none has been reported subsequently. No adverse reactions were noted which could be ascribed to treatment, neither was there reason to suspect that the compound influenced pregnancy in any way.

Routine treatments with amicarbalide at approximately 5 mg. per kg. have been undertaken by 2 of us (J.W.T. and G.S.) and 40 case records have been compiled. Three animals died in spite of treatment; 2 of these were neglected cases presented *in extremis*; the third case was a Friesian cow with peracute symptoms, recently imported from a tick-free area, which failed to respond to treatment at 5 mg. per kg. The remaining 37 cattle in this series recovered, 33 responding in 8 to 24 hours to a single treatment. Three animals were re-treated after 24 hours, the urine not having cleared at that time; these were reported cured within a further 8 hours. No adverse systemic reactions were observed or reported but 3 yearlings developed firm and persistent swellings at the sites of injection, approximately the size of the palm of a man's hand.

The findings were sufficiently encouraging to justify extending the scope of the trial. Accordingly, and with the collaboration of practitioners in other parts of the British Isles where redwater is endemic, records were obtained of the treatment of approximately 50 further cases. The clinical observations relating to each case were recorded. As before, a subcutaneous dose of approximately 5 mg. per kg. was advocated although this was sometimes exceeded. All the animals in this series recovered, with the exception

TABLE I

TOXICITY OF AMICARBALIDE

Case	Dosage (mg./kg.)	Dose (ml.)	Concentration w/v. per cent.	Route	Site	Rectal temperature, °F. Hours after dosing 0	3	6	9	18	Character of pulse Hours after treatment 0	6	18
1.	5·0	6·25	40	I/m.	Shoulder	100·0	102·2	102·8	101·8	100·5	Normal	Full fast	Normal
2.	10·0	8·00	40	S/c	Brisket	102·2	102·5	102·8	103·4	102·8	Soft arrhythmical	,,	Soft
3.	10·0	9·40	40	I/m.	Shoulder	100·0	101·2	103·0	103·0	101·4	Normal	,,	Normal
4.	10·0	11·0 / 5·50	20 / 40	S/c. / ,,	Left neck / Right ,,	101·0	101·2	101·4	102·0	101·0	,,	Normal	,,
5.	20·0	19·0	40	,,	Brisket	102·0	103·0	103·6	103·4	102·4	Hard	Fast hard	Fast hard
6.	20·0	18·80	40	I/m.	Shoulder	100·2	104·0	103·6	104·2	101·2	Normal	Full fast	Near normal

TABLE II

RESULTS OF PILOT TRIAL OF AMICARBALIDE IN THE TREATMENT OF BRITISH REDWATER

Case	Breed	Sex	Estimated weight (kg.)	Dosage mg. per kg.	Date	Time	Urine	Faeces	Rectal temperature °F.	Pulse	Mucous membranes	*B. divergens* in stained smears	Remarks
1.	SD	Heifer pregnant 7 mths.	350	5·0	8.6.59	5.45 p.m.	Black, viscous	Nil	98·0	120, hard	Icteric	+	Died overnight
2.	SD	Heifer, 15 mths.	300	5·0	9.6.59	3.00 a.m.	Dark red	Soft	103·0	Bounding	Pale	+	
					10.6.59	9.00 a.m.	Clear	Soft	101·2	Normal	White	NPS	Discharged
3.	SD	Heifer, 2 years	400	5·0	10.6.59	10.00 a.m.	Dark, viscous	Hard, impacted	99·6	104 violent	White	Sc	
				4·0	11.6.59	10.30 a.m.	Red	Hard, impacted	97·0	Very fast, weak	White	NPS	Died 7 a.m., 12.6.59
4.	SD	Heifer, 2 years	350	5·0	10.6.59	11.30 a.m.	Red	PS	104·6	Fast, full	Injected	+	
					11.6.59	9.00 a.m.	Pink	Normal	102·4	Normal	Injected	NPS	
					11.6.59	2.30 p.m.	Clear	Normal	102·0	Normal	Injected	NPS	Discharged
5.	SD	Steer, 18 mths.	400	5·0	11.6.59	3.30 p.m.	Red	Hard, scanty	100·4	Normal	Pale	+	
					12.6.59	10.00 a.m.	Clear	Hard, scanty	100·4	Normal	Pale	NPS	Discharged
6.	G	Heifer, 2 years	330	5·0	12.6.59	11.00 a.m.	Dark red	PS	105·0	Bounding	Injected	NPS	
					13.6.69	1.00 p.m.	Clear	Thin	102·2	Normal	Normal	NPS	Discharged
7.	SD	Steer, 18 mths.	275	5·0	12.6.59	8.30 p.m.	Black/red	PS	105·0	100, full	Pale	+	
				5·0	13.6.59	10.00 a.m.	No change	PS	103·8	92, hard	White	+	Haematinics prescribed, recovery uneventful
					13.6.59	5.00 p.m.	Clear	Thin	102·0	80, hard	White	NPS	
8.	BF	Steer, 18 mths.	250	10·0	13.6.59	7.30 p.m.	Red	Normal	104·0	80, full	Injected	+	
					14.6.59	9.00 a.m.	Clear	Normal	103·0	80, full	Normal	NPS	Discharged
9.	BF	Cow, pregnant 6 mths.	500	5·0	14.6.59	10.30 a.m.	Dark red	PS	105·0	Bounding	Pale	+	
					14.6.59	6.00 p.m.	Red	PS	105·0	Bounding	Pale	+	
					15.6.59	9.00 a.m.	Clear	Normal	103·0	Normal	Pale	NPS	Discharged
10.	G	Heifer, pregnant 8½ mths.	275	5·0	13.6.59	9.30 a.m.	Dark red	Firm	103·6	Bounding	Pale	Sc	
					14.6.59	10.30 a.m.	Clear	Firm	102·2	Fast, full	Pale	NPS	Discharged
11.	Sh	Cow at term	550	5·0	15.6.59	7.30 a.m.	Red	Firm	102·0	Bounding	Normal	NPS	
					16.6.59	9.30 a.m.	Pink	Normal	100·5	Fast, full	Normal	NPS	Calved a live calf
					16.6.59	11.00 a.m.	Clear	Normal	100·0	Normal	Normal		Discharged
12.	SD	Heifer, 2 years	325	5·0	15.6.59	9.30 a.m.	Almost black	Hard, scanty	104·0	Bounding	Pale	+	
					16.6.59	8.30 p.m.	Dark red	Nil	101·0	Fast, hard	White	Sc	Haematinics prescribed, recovery uneventful
					17.6.59	8.00 a.m.	Amber	Scanty	100·0	Fast, hard	White	NPS	
					17.6.59	11.00 a.m.	Clear	Scanty	100·0	Fast, hard	White	NPS	

KEY: PS = "Pipe-stem" diarrhoea (Wright *et al.*, 1958). +{ = More than one parasitised erythrocyte per 12 fields.
Sc = Scanty. NPS = No parasites seen. SD = South Devon. G = Guernsey. Sh = Shorthorn. BF = British Friesian.

of one South Devon yearling which was moribund when treated and died within a few hours. Three animals were re-treated after 24 hours using the same dose of 5 mg. per kg. One animal relapsed or was reinfected after 3 weeks and was successfully re-treated with amicarbalide. No adverse systemic effects were reported but one Jersey cow developed an abscess at the site of injection.

Discussion

In assessing the therapeutic worth of a babesicide it is necessary to assume a high rate of natural recovery, at least in stock reared in an area where redwater in endemic. What the mortality rate in untreated cattle would be we do not know and it would be impossible to find out under practice conditions in this country to-day. Harvey wrote in 1936, " the disease . . . is to be regarded as a ' killer,' and I doubt whether any other had furnished as many carcases to the yards above mentioned, in the same period, as this one." Wright *et al.* (1958) state that whereas there are no reliable figures for the mortality rate from piroplasmosis in Britain, the death rate probably does not exceed 5 per cent. of clinical cases. From our observations we regard this as an underestimate. In our experience, fatalities have occurred in one of three circumstances: first, that in which an animal, presented in the terminal stages of the disease, is often beyond aid—this alone accounted for 5 per cent. of our series of 100 cases and for 5 out of our 6 fatalities; second, there is the unknown number of beasts found dead at pasture, where the diagnosis of redwater can only be made after autopsy; and finally, there is the unknown proportion of clinical cases which, given specific treatment in the early or middle stages of the disease, die nevertheless. The total mortality thus represented may well be 10 per cent. or possibly more on hill and moorland farms where early diagnosis is the exception rather than the rule. The economic wastage occasioned by loss of milk and meat and through abortions is as important as mortality.

It should be the aim, in treating stock for *B. divergens* infections where the disease is endemic, to reduce parasitaemia to the point at which the defence mechanisms of the patient are able to establish a balance between parasite and host, leading to a state of premunition. If we consider the low relapse rate and high rate of recovery recorded in this trial, it appears that the use of amicarbalide at approximately 5 mg. per kg. substantially meets this requirement. A dose of 5 mg. per kg. could therefore be adopted as standard in such areas.

We noted, and our collaborators confirmed, that full doses of the compound could be given with safety even to patients showing severe cardiac irregularities. The observation that the compound has high babesicidal activity and is well tolerated in such circumstances is regarded by us as evidence of a useful advance in the chemotherapy of this infection.

We have noted the case of a Friesian cow suffering a peracute attack of redwater soon after her arrival from an area free from the disease; she died quickly and without abatement of symptoms in spite of treatment with amicarbalide at 5 mg. per kg. In this instance, where treatment was clearly of little value, it must be assumed either that the dose was too small to deal with a massive infection or that the intrinsic activity of the compound was too feeble or too slow in manifesting itself to influence the fatal outcome. It is possible that this beast could have been successfully treated if the dose had been increased to 10 mg. per kg. and given by intramuscular or by intravenous injection.

Local tolerance after the subcutaneous injection of 50 per cent. w/v solutions was generally satisfactory although persistent swellings were reported in a few instances and one thin-skinned subject developed an injection abscess. Such local effects are largely due to the use of a highly concentrated solution, which is unavoidable in circumstances where fairly large doses are involved and the volume to be injected has to be restricted. Studies are contemplated to discover whether intramuscular or intravenous injections of this solution provoke less severe reactions.

Acknowledgments.—Our grateful thanks are due to the following veterinary surgeons who assisted by carrying out treatments and reporting results: Messrs. G. Blaikley, J. Brown, T. Hughes Ellis, L. Evans, H. G. L. Harvey, F. V. John, A. S. Jones, W. D. Juby, J. C. MacKellar, S. C. Rickard, J. L. Rodger and E. I. Williams.

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THE JOURNAL OF SMALL ANIMAL PRACTICE

We have received from the publishers, the Pergamon Press, the first issue of this new journal, which is sponsored by the British Small Animal Veterinary Association, a Division of the B.V.A. The contents include several mainly clinical papers of interest to small-animal specialists, general articles, and an Abstracts section. The Executive Editor is Mr. Bruce V. Jones, M.R.C.V.S., who is assisted by 4 professional colleagues and an international advisory board.

The journal is well bound and pleasantly printed, and reflects much credit upon the B.S.A.V.A. For an association which is necessarily limited in size by its specialist interests to produce a quarterly journal of this quality is both a considerable act of faith and of practical planning and effort. We wish the journal well.

We have received a copy of the official proceedings of the B.S.A.V.A. annual congress, and this will be reviewed in due course.

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—— **Food and Agriculture Organisation** *and* **Office International des Epizooties.** Report of the joint FAO/OIE meeting on the control of tick-borne diseases of livestock ; held in Rome, Italy, 23–27 July, 1956. ROME : F.A.O., 1957. 124 p., tables, bibliog. 28½ cm.

United States of America. Agriculture Department of. Parasites and parasitic diseases of sheep. By J. T. Lucker and A. O. Foster. WASHINGTON : U.S.D.A., 1957. 50 p., illus. 23½ cm. (Farmers' Bulletin No. 1330).

—— **National research Council.** *Committee on Animal Nutrition.* Hormonal relationships and applications in the production of meats, milk, and eggs . . . prepared by the sub-committee on animal nutrition . . . [WASHINGTON] Agricultural Board, N.R.C., 1953. iv, 54 p., 24½ cm. (Publication 266).

Welch, H., *and* **Marti-Ibanez, F.,** *editors.* Symposium on medicated feeds. Proceedings of the symposium on medicated feeds sponsored by U.S. Dept. of Health, Education, and Welfare, Food and Drug Administration. Veterinary Medical Branch, January 23 and 24, 1956. NEW YORK : Medical Encyclopedia Inc., 1956. vii, 214 p., 26 cm.

Worden, A. N., *and* **Lane-Petter, W.,** *eds.* The UFAW handbook on the care and management of laboratory animals. *Second edition.* LONDON : UFAW, 1957. xix, 951 p., illus., 25 cm.

Wright, J. G. Veterinary anaesthesia. *Fourth edition.* LONDON : Baillière, Tindall & Cox. 1957. xiii, 317 p., illus., diagrs., 22 cm.

Zuijdam, D. M. Pseudovogelpest vaccinatie en virusuitscheiding. UTRECHT : Univ. Utrecht, 1952. 123 p., plate, tables, 24 cm. (Proefschrift . . . van Doktor) [English summary].

R.C.V.S. Council Meeting

The Council of the British Veterinary Association decided recently to adopt the suggestion of its Editorial Committee that meetings of the Royal College Council should be fully reported and that such reports should be published in THE VETERINARY RECORD *and not, as heretofore, in the* SUPPLEMENT. *The Editor, therefore, attended the last R.C.V.S. Council Meeting by courtesy of the President, Officers and Council.*

THE quarterly meeting of the Council of the Royal College of Veterinary Surgeons was held at the Royal College, 9 and 10 Red Lion Square, London, W.C.1, on Friday, April 1st, 1960. The President (Mr. J. N. Ritchie, C.B.) presided.

THE PRESIDENT said that it was the first meeting to be attended by a representative of THE VETERINARY RECORD, and he welcomed him on behalf of the Council. He also welcomed back Professor Lamont, now happily restored to health. Professor Pugh, whose absence they regretted, had had a successful operation and was progressing favourably. They regretted the absence of the Treasurer (Mr. H. Sumner), who was prevented from attending by the illness of his wife.

Minutes

The Minutes of the Council Meeting of January 8th, 1960, were signed as a correct record.

Obituary

The Council stood in silence as a mark of respect to the memory of members who had died since the previous meeting.

PROFESSOR G. F. BODDIE drew particular attention to three names on the obituary list. The first was that of Major William Barr, with whom he had served while honorary secretary of the Scottish Branch, and whose repute had stood very high in Scotland. The Council would have the memory of a very gracious gentleman.

The second name was that of Professor R. G. Linton; an appreciation of him, written by Professor Boddie had appeared in THE VETERINARY RECORD.

The third name was that of Mr. James Wood, a man much buffeted by fate who had met his many grievous difficulties with the greatest of courage.

PROFESSOR R. LOVELL paid tribute to the memory of Mr. E. J. Pullinger, whose brilliant research ability had been lost to the profession. Had he been allowed his wish, he would have made a much greater contribution to veterinary surgery.

THE REGISTRAR (Mr. W. G. R. Oates) referred to the death of Major-General E. R. C. Butler, who had been a member of the Council from 1896 to 1898. He had visited the College when last in Britain, and at the age of 93 had revealed himself as a most charming and courteous gentleman.

Correspondence

THE REGISTRAR reported that the College had received an invitation from the Australian Veterinary Association to attend the annual general meeting of that Association in Sydney, from May 23rd to May 27th, 1960, to celebrate the 50th anniversary of the foundation of the Veterinary School, and the first Stewart Oration, founded to perpetuate the memory of the late Professor J. D. Stewart. He had been a Fellow and an Honorary Associate of the College, and the College had subscribed to the Oration fund.

It was agreed to send a message of congratulation, and to ask Professor Gunn, an Associate in Australia, to represent the College on the occasion.

A letter had been received from the Department of Agriculture, Republic of Eire, stating that Professor Nicholson had resigned his seat on the Council and that in his place the Minister of Agriculture for the Republic had appointed Mr. P. Harnett, Director of Veterinary Services of the Department of Agriculture.

Professor Nicholson had written to say that he felt he should relinquish his seat on the Council as representative appointed by the Minister of Agriculture, as he had vacated the office of Principal of the Veterinary College, which position no longer existed. He had been appointed to the Chair of Pre-Clinical Science.

THE PRESIDENT said that Professor Nicholson had been a member of the Council since 1951, with a short interval. They should write to him to thank him for the work he had done and say how much they regretted the situation which made him feel he should resign his membership of the Council. This was agreed.

A letter from Dr. R. E. Glover about his recent visit to East Africa was read and the Council, having discussed it in committee agreed to its inclusion in the Minutes, with an amendment. The letter was as follows:—

Royal Veterinary College,
Royal College Street,
London, N.W.1.
1st April, 1960.

Dear Mr. President,

I should like to take this opportunity of conveying my thanks to Council for defraying the cost of my travel expenses to East Africa. I think it should be recorded that the decision to visit Kenya arose out of informal discussions in London.

I interpreted my terms of reference as a desire on the part of the Council to keep in touch with a variety of topics in which it is interested in territories overseas. The arrangements for my itinerary in Kenya were in the hands of Mr. Beaton who also extended hospitality to me and to whom I am most grateful. Through his good offices I was able to meet representatives of all the veterinary organisations in Kenya and I am much indebted to them for so courteously providing me with much information. Our discussions ranged over veterinary education, control of disease, the relations between various sections of the profession in the territory and so on. I hope that these informal talks may have been of some service.

I felt it was necessary to emphasise that it is the declared policy of the Royal College of Veterinary Surgeons to leave, in the first instance, matters of ethical conduct in the hands of local veterinary boards where such bodies have been instituted, although it remains open to the Royal College to deal subsequently with any of its members who have come before a local veterinary board. At

the same time I assured all members of the profession whom I met that the Council is interested in the affairs of its members in East Africa and through its Officers or its Registrar, is anxious, whenever it is approached, to give such assistance as may lie within its powers.

Yours sincerely,
Ronald E. Glover.

PROFESSOR H. G. LAMONT said he was anxious that it should be known Dr. Glover's visit was informal; they should thank him for the advice which he had given.

REPORTS OF COMMITTEES *

Examination and Education Committee

A meeting of the Examination and Education Committee was held on Thursday, March 31st, 1960.

Minutes

The minutes of a meeting held on Thursday, January 7th, 1960, having been printed and circulated were taken as read and signed as correct.

Fellowship Sub-committee

It was resolved to recommend to Council that the Fellowship of the Royal College be bestowed upon Dr. J. C. Greatorex, and that the Fellowship of the Royal College for meritorious contributions to learning be bestowed upon Mr. J. W. G. Leiper.

Visitation of Universities

The Committee considered the following note from the Officers who had given further consideration to the matter at the Committee's request.

"The Officers have given further consideration to the matter and feel that the position from the view point of finance and manpower does not allow of each university receiving a full visitation once in every five years. They have decided to recommend to the Committee that full visitations should be carried out so that each university receives a full visitation once in every eight years (as recommended in the original memorandum) but with the additional recommendation that departmental visits, or a visit at university level could be made at the request of the University or the Veterinary School of the University in the years between the full visitations. In such a case the number of visitors would, of course, be limited. Where a departmental visit was being made, opportunity would be taken to ensure contact at university level.

"It was further recommended that where such visits were made, the one or two visitors concerned should be members of the full panel which had conducted the previous visit or would conduct the next visit."

It was resolved (a) that each university's veterinary school should receive a full visitation at intervals not exceeding ten years, and (b) that during the intervening period departmental visits could be carried out at the request of the university or veterinary school concerned, or at the discretion of the Council of the Royal College.

Recognition of Irish Veterinary Degrees

At the request of the Chairman, Professors McGeady and Jessop gave the Committee the latest information on the staffing position in the National University of Ireland, and Trinity College, Dublin.

R.C.V.S. Trust

The Committee noted that the Trust had been approved by the Agricultural Research Council for the purposes of Section 335 of the Income Tax Act, 1952. This approval allows commercial bodies who donate capital sums to the Trust to be used for research to treat the donations as expenses for purposes of taxation.

Report of the Working Party on Veterinary Education in the Underdeveloped Countries

Professor Weipers introduced this report and after some discussion it was resolved that in view of the forthcoming FAO Conference full consideration of the report should be deferred to a special meeting of the Committee to be held in conjunction with the next quarterly meetings of Council. Members of the Committee were requested to submit written comments on the report in time for consideration at the special meeting.

Admission of Dominion and Colonial Graduates to the Irish Register

It was reported that, at a recent meeting, the Veterinary Council of Ireland decided to admit to the Irish Register graduates of Dominion and Colonial Universities provided that their names were at the time enrolled in the General Register maintained by the Royal College.

Recognition of the Scottish Diploma of Agriculture

It was noted that the following letter had been received from a holder of the Scottish Diploma of Agriculture:—

"In March, 1950, I obtained the Scottish Diploma of Agriculture whilst at the North of Scotland College of Agriculture, Aberdeen. I would be grateful if you would inform me whether it would be appropriate for me to use this qualification and if it could be entered in the Register."

It was agreed that this qualification should be entered in the Register.

FAO Conference on Veterinary Education

It was noted that this Conference was being held at Church House, Westminster, from Monday, April 25th, to Saturday, April 30th, and that delegates from 30 countries would be attending. It was further noted that the plenary session would be open and could be attended by any interested person. The Royal College would be represented by the Treasurer, Dr. Wooldridge and Professor Laing.

PROFESSOR LAMONT, presenting the report, drew attention to the decision that each university's veterinary school should receive a full visitation at intervals not exceeding ten years. Originally it had been hoped to do this in eight years.

Professor Weipers had introduced the report of the working party on veterinary education in the underdeveloped countries. The Committee had decided that as FAO were to have a conference at the end of April, the College should await the results of the conference and have a full meeting of the Committe subsequently to discuss the Report.

The report was adopted.

Finance and General Purposes Committee

A meeting of the Finance and General Purposes Committee was held on Thursday, March 31st, 1960.

Minutes

The Minutes of the meeting held on Thursday, January 7th, 1960, having been printed and circulated were taken as read and signed as correct.

Financial Statement

The financial statement was submitted for the period January 1st to March 31st, 1960. It showed a balance in hand of £8,963 17s. 4d.

The chairman said the credit balance was to some extent misleading and arose because the majority of annual fee payments were received during this quarter. Over the whole financial year ending March 31st, 1960, there would, in fact, be a deficit of approximately £2,000. It was resolved that the statement be approved and the Treasurer be ordered to pay the liabilities shown together with cheques for salaries, wages, petty cash, superannuation premiums and all the usual outgoings.

* In the interests of reasonable brevity some amount of detail has been omitted. The reports should not be read as full Minutes of the committees concerned.

Shorthand Reporting

The Committee noted the following letter from the Editor of THE VETERINARY RECORD:—

"Further to your letter of January 18th I have now had a word with my Honorary Treasurer and he asks me to suggest with regard to the possible joint use of the services of Messrs. T. A. Reed and Co. that for your next Council and Disciplinary Committee meetings, the College should pay the attendance fee and we will pay the fee for the typewritten transcriptions. If this seems to you a reasonable suggestion as an experiment, we can then put the exact costs borne by each organisation before our finance committees so that they may consider such permanent arrangement as they wish to enter into.

"No doubt you will kindly let me know in due course whether we should experiment on these lines."

The Committee noted that it was proposed to have discussions between the Officers of the B.V.A. and the R.C.V.S. on a number of related matters and it was felt that this matter should be left for discussion at that time.

Report of the Sub-Committee on the Procedure and Composition of Committees

It was generally agreed during discussion that the Fellowship sub-committee should continue as a separate sub-committee owing to the confidential nature of its business and the necessity for giving adequate time and consideration to its deliberations. It was also felt that it should continue to report to Council through the Examination and Education Committee for the time being.

On considering the proposed composition of committees some concern was expressed whether the suggested procedure would allow members of Council to become adequately informed on all aspects of College affairs. It was, however, pointed out by the President that the new procedure was designed to encourage proper discussion in Council where all members would have the opportunity to acquaint themselves with matters of interest arising in committees of which they were not members.

The Committee were in agreement that the report should go forward to Council with the one amendment concerning the Fellowship sub-committee.

*Report of the Building Committee**

It was reported that an offer had been received for the site on which the College buildings stand, and that the College was awaiting further offers.

MR. J. B. WHITE, presenting the report, said that although the balance sheet showed a credit balance of about £9,000 over the last twelve months there had been a deficit of about £2,000, the same as last year.

At the moment it was difficult to present a "sensible" budget because the College finances were in the process of change. It was hoped that next year it would be possible to present a more detailed and accurate budget.

The recommendations contained in the Report of the Sub-Committee on the Procedure and Composition of Committees had the purpose of expediting the business of Council meetings and ensuring that they could be held within two days. By the production of more informative minutes it would be possible to let all members of Council know what was taking place in the committees.

DR. GLOVER said that this report had been discussed by the finance committee, where Mr. A. J. Wright had questioned the wisdom of altering the present procedure whereby members of Council were permitted to "sit in" at all committee meetings. He agreed entirely with Mr. Wright; it was knowledge of the background and what went on in committee which made the subsequent discussions in Council more intelligent and constructive.

He moved that the exclusion of members of Council from committees be reconsidered, bearing in mind that members of Council would not take part in debates in committee unless the Chairman specifically invited them to do so.

MR. A. J. WRIGHT said he entirely agreed with Dr. Glover. It was essential for members to have a full understanding of what was discussed in Council. As a comparatively new member, he had found that only by attending the committees, as a visitor, had he fully understood the many facets and duties of the College. Members of Council were often asked by veterinary surgeons for advice and were asked why the College did certain things. Unless they knew all the facts, they could not give that advice. "The majority of the profession have a very poor realisation of the workings of this body," he added. "We have been told by the committee that we shall have fuller minutes to help the profession understand the work which the College is doing, but I feel strongly that it is not to the advantage of the Council to prevent members from attending committee meetings, as visitors."

DR. W. R. WOOLDRIDGE said he took it that this motion should first be sent to the committee for the reconsideration of the sub-committee. He agreed with Dr. Glover; they had no right to prevent a Council member from attending as long as he did not participate in the committee's deliberations. He (Dr. Wooldridge) would make it clear that no one who was not a member of the Committee could participate in the discussions unless he was invited beforehand by the chairman to attend because it was felt that he had a useful contribution to make. It should not suddenly arise in a committee when the chairman of that committee saw a member of Council sitting there and felt that he might be of assistance.

PROFESSOR A. ROBERTSON asked whether it was felt that Dr. Glover's motion was sufficiently important to require the organisation of committee meetings in such a way that members of the Council could attend all of them. If it were, it would negative the whole purpose of the revision of committees, for the intention had been that several committees would meet at the same time. The President pointed out that only the library committee and one other would meet simultaneously.

PROFESSOR W. L. WEIPERS supported the sub-committee's report. Over the last years it had been difficult for commitees to function as such because they had lost their informal atmosphere. Much of their work for the College had been slowed as a result.

PROFESSOR J. G. WRIGHT said "This matter in some measure arises from the deficit of £2,000 last year. It would be a serious matter if such deficits necessitated our reducing the effective functions of the College. Having regard to our total income, £2,000 is a considerable deficit. We increased our annual subscription from one guinea to four guineas, and

* The Building Committee, after careful deliberation, had recommended that the College should not develop the present site, as at first planned, but dispose of it and house the College in appropriate surroundings elsewhere.

there was considerable resentment when it was done. Even now it seems that our income is inadequate. The statement of accounts for last year showed that there were no exceptional expenses; the financial pattern may well be repeated next year. The President and the Officers have been seeking measures whereby we can economise but I feel that such economies would represent a relatively small reduction in our inevitable expenditure.

"This brings us back to the Bill which was the precursor to the 1948 Act. It was made clear to the Ministry representatives who visited us that the educational aspects of the Bill would represent a great loss of income to the College because examination fees represented a considerable part of our income. Moreover, we were given additional financial responsibility in our visits to the universities under the Act.

"I remember that at that time it was frequently said that it might be necessary for the College to ask the Ministry to make a contribution to the running of the College in carrying out its statutory duties under the 1948 Act.

"I will not make a proposition at this meeting but would ask the President and the Officers whether they would give this matter very serious consideration. Has the time not arrived when we might properly ask the Government, through the Ministry of Agriculture, to make a contribution to the effective running of this College? It may be said that we should then lose our autonomy, but I have not much fear of that. The universities of this country receive enormous grants from the Government, and they certainly have not lost their autonomy.

"If a deficit of this kind continued for ten or twenty years, the College might well be heading for bankruptcy."

A motion from Dr. Glover was put to the meeting; there were 14 votes for it and 14 against. It was decided to refer the report back to the sub-committee for reconsideration.

DR. WOOLDRIDGE pointed out that the sub-committee's recommendation was that the Chairmen's Committee should be disbanded and that its work should be carried out by the Officers. He asked the Council to recall the reasons for the establishment of the Chairmen's Committee. It had been intended to cover all the other committees for the period between quarterly meetings. Since then it had grown into a type of executive, handling almost everything and taking away work from other committees in the opinion of many members. No doubt this was a factor leading to the recommendation that it should be disbanded.

The danger would be just as great, however, if the Officers continued to carry out the work which the Chairmen's Committee had been doing. One of the reasons for the establishment of that Committee had been a feeling that the Officers were doing more than they should do without reference to a committee.

Had the committee given enough consideration to the Past Presidents' Committee? The recommendation was that this committee should continue as in the past but that the President should be a member of it. The Council should seriously consider whether the Past Presidents' Committee was necessary. It comprised only those past presidents who remained on the Council and it might meet with very few people present. Its only duty was to decide whom to nominate for consideration as the next President. This was a subject which ought to be considered at least by the Finance and General Purposes Committee, if that were regarded as an executive committee, and possibly by the Council.

THE PRESIDENT replied that the latter point had been considered by the Finance and General Purposes Committee, which had had the report of the sub-committee. The Chairmen's Committee had not been functioning recently. The report gave some examples of what the Officers might discuss, and there was not the slightest intention of recommending that the Officers should usurp the functions of any of the committees.

MR. ANDERSON said that the Chairmen's Committee was becoming rather a burden because practically every matter which came before the Council had previously been discussed by the Chairmen's Committee and the appropriate standing committee. When the report stated that the functions of the Chairmen's Committee would be undertaken by the Officers, it meant those functions which were left after the standing committees had taken their appropriate functions.

THE PRESIDENT suggested that the report be accepted and that the mechanics of electing a president be considered at a future Council meeting. Dr. Wooldridge said this would meet his views.

With this proviso, the committee's report was adopted.

Parliamentary Committee

A meeting of the Parliamentary Committee was held on Thursday, March 31st, 1960.

Minutes

The Minutes of the meeting held on Thursday, January 7th, 1960, having been printed and circulated were taken as read and signed as correct.

Sub-Poena Powers of the College

It was reported that a memorandum had been prepared and approved by the President, the chairman and the College solicitors and had been sent to Lord Simmonds's committee, submitting that there should be no alteration of the powers enjoyed by the College under the Veterinary Surgeons Act, 1948.

The P.D.S.A. and Section 7 Veterinary Surgeons Act, 1948

Sir Laurence Watkinson reported further discussions with the P.D.S.A. on the question of salaries, which had resulted in increased salaries being advertised. He had also taken up the question of advertisements at shows where it had not been made clear that the services of the P.D.S.A. are intended for those who cannot afford veterinary services. He had met the advertisement manager of the P.D.S.A. who had been helpful in this matter.

The pilot schemes appeared to be going well in three areas.

Animal Nurses

It was reported that the delay in this matter was the result of the importance of the decision that would have to be made by the Minister concerned.

Radioactive Substances Bill

The chairman reported that he had personally, in conjunction with the Parliamentary Agents and the Registrar, been concerned with the progress of this Bill through Parliament. Various matters which might have affected scientific workers had been put right in the passage of the Bill through the House of Lords.

The Parliamentary Committee had considered a number of other Bills including the Public Bodies (Admission of Press to Meetings) Bill, the Noise Abatement Bill, and the Oldham Corporation Bill, in which the Corporation had consented to include a new sub-section.

The report was presented by Professor Weipers and adopted.

Past Presidents' Committee

A meeting of the Past Presidents' Committee was held on Wednesday, March 30th, 1960.

Minutes

Minutes of the previous meetings having been printed and circulated were taken as read and signed as correct.

President 1960-1961

It was resolved to recommend to Council that Mr. J. N. Ritchie be elected President for the year 1960-1961.

Senior Vice-President 1960-1961

It was resolved to recommend to Council that Mr. G. N. Gould be elected senior vice-President for the year 1960-1961.

Junior Vice-President 1960-1961

It was resolved to recommend to Council that Mr. L. G. Anderson be elected junior vice-President for the year 1960-1961.

Report

Arising out of the report of the Past Presidents' Committee presented to the last quarterly meeting of Council and to be discussed at the meeting of Council at which this report will be considered, it was unanimously resolved to inform the Council that the committee's opinion was that it would be valuable for the committee to be able to recommend to Council, when necessary in the future, more than one junior vice-President, but with the understanding that when this is done one of the junior vice-Presidents be designated as the person that the Past Presidents' Committee intend next to recommend to the Council as President.

MR. T. M. MITCHELL, presenting the report, said it had been decided to recommend that Mr. J. N. Ritchie be elected President for the year 1960-61; that Mr. G. N. Gould be elected senior vice-President; and that Mr. L. G. Anderson be elected junior vice-President.

In view of the statement that the Council would discuss the mechanics of the election of President at a future meeting, he agreed that that portion of the report be referred back.

With this exception, the committee's report was adopted.

Honorary Associateship

The Council resolved that the Diploma of Honorary Associate be bestowed on Dr. Rudolph Manninger of Hungary.

Annual Luncheon

THE REGISTRAR reported that the Minister of Agriculture, would propose the toast of the Royal College at the annual luncheon on May 25. Dr. Kenneth Wells, Veterinary Director-General of the Dominion of Canada, would come to this country to respond on behalf of the guests.

Annual Report

The Council gave the President authority to prepare the annual report up to March 31st, 1960, in conjunction with the chairmen of committees. A draft would be submitted to members of Council for their comments.

News and Comment

THE BRITISH CATTLE BREEDERS' CLUB

Following last year's successful summer conference in Scotland, the British Cattle Breeders' Club is to hold the 1960 conference at the University College of North Wales, Bangor, on Monday and Tuesday, July 18th and 19th, 1960.

Professor E. J. Roberts, Dr. C. B. Coulson, Professor R. G. White and Dr. J. H. Watson—all lecturers at the College—will read papers on livestock problems that are being studied there. Dr. S. A. Asdell, from Cornell University, a specialist on the prevention of sterility, will give a paper on "Trends in the Livestock of the U.S.A."

Further details of the conference, which is open to non-members, are obtainable from the Secretary, 41, Parliament Street, Westminster, London, S.W.1.

UNIVERSITY NEWS

Bristol

The following students passed the third examination for B.V.Sc. (Pathology, Parasitology, Animal Husbandry II):—

Baker, J. R.; Bray, N.; Clarke, Zandra; Dear, J. P.; Edwards, H. G.; Edwards, J. C.; Ford, C. Jane; Gould, L. A. (with distinction in Pathology); Graham, J.; Hill, T. J.; Shepherd, D. A. L.; Stuart, A. N.; Whymark, T. R. C.; and Wilson, M. R.

ROYAL SOCIETY OF HEALTH CONGRESS

The profession was well represented among the 400 delegates attending the Veterinary Hygiene Section's deliberations at the R.S.H. Congress at Torquay on April 29th. The high standard and success of these meetings over the past few years was again well in evidence.

The Section met under the Presidency of Sir Weldon Dalrymple-Champneys, Bt., the title of whose Address was "The Future of Brucella Infection in Animals and Man." This dealt with the history of the condition, its transmission to man, reservoirs of infection, and the future outcome of Brucella infection in this country. Mr. G. Atkinson, a member of Council of the R.C.V.S., in proposing the vote of thanks to the President spoke of his valuable contributions to public health in general and particularly to his great interest in all veterinary matters.

The first paper of the session, read by Sir Frank Shires, Chairman of the Board of Governors, National College of Food Technology, dealt with "Meat Factories of the Future: a Look Ahead." Mr. E. J. Dyett, of Messrs. T. Wall & Son, Acton, London, opened the discussion on Sir Frank's most interesting paper.

The second part of the proceedings took the form of a series of colour transparencies depicting "Pathological Abnormalities encountered in Meat Inspection." These were shown by Mr. H. Thornton, Chief Veterinary Officer, Newcastle upon Tyne, who is to be congratulated on the excellent quality of his colour slides and the very informative annotations which accompanied them.

Dr. J. C. Greatorex, Royal Veterinary College, again acted as secretary of the Section.

As has become the custom in recent years an informal luncheon was held at the Victoria Hotel for those members of the veterinary profession attending the Congress. On this occasion, the arrangements were made by Mr. John Dall, and those attending spoke highly of the success of such gatherings.

SOCIAL EVENTS AT THE FAO CONFERENCE ON VETERINARY EDUCATION

FAO Tea Party

On the first day, April 25th, the delegates and staff were the guests of the Food and Agricultural Organisation of the United Nations for tea at Church House, Westminster, where the meeting was held.

Royal College of Veterinary Surgeons

On the afternoon of Wednesday, April 27th, the delegates and staff were invited to attend an open house at the R.C.V.S. where tea was provided.

An exhibition was brought together to illustrate the foundation of veterinary education in the United Kingdom and the exhibits proved of great interest to the delegates present, especially to those from overseas whose veterinary education had been obtained in the United Kingdom or who had attended veterinary schools overseas which derived their foundation from the Royal College of Veterinary Surgeons.

In the Library there was an exhibition of historical books from the collection. Another exhibit of great interest, in view of the international situation between India and China, was of material relating to the travels of William Moorcroft in the area now in dispute between these two nations.

University of London

Following the College exhibition the University of London held a formal reception in the Senate House of the University where the Vice-Chancellor and Mrs. Harris with the Principal and Lady Logan received the guests.

H.M. Government

On the evening of Thursday, April 28th, a reception was held in Lancaster House on behalf of Her Majesty's Government. The Minister of Agriculture, Fisheries and Food, in whose name the formal invitations had been sent, was unable to receive the guests owing to his absence in Geneva, and in his place, Mr. Joseph Godber, M.P., received the guests.

R.C.V.S. COUNCIL ELECTIONS, 1960

Members are reminded that the final date for the receipt of voting papers is Monday, May 16th, 1960.

R.C.V.S. OBITUARY

We record with regret the death of the following member of the profession:—

ADAMSON, John, M.C., T.D., Highfield House, Lea, Preston, Lancs., Major R.A.V.C. (T.A. Res.) (Retd.). Graduated July 16th, 1901, at the Royal Veterinary College, London. Died May 5th, 1960, aged 82 years.

PERSONAL

Professor E. C. Amoroso, who holds the Chair of Veterinary Physiology at the Royal Veterinary College, has been elected a Fellow of the Royal College of Surgeons of England.

Golden Wedding

On May 9th, 1910, Esmond Brown, M.R.C.V.S., to Edith Nora Grady.

Births

CARE.—On May 1st, at Rye Street Hospital, Bishop's Stortford, to Grizel (*née* Taylor) and Tony Care, a son, Ian.

HORROX.—On April 17th, 1960, to Jean, wife of Michael Horrox, M.R.C.V.S., of Bridlington, a son.

COMING EVENTS

May

18th (Wed.). Meeting of the Lancashire Veterinary Association at the Queen Hotel, Chester, 7.30 p.m.

Annual General Meeting of the Southern Counties Veterinary Society at the Royal Hotel, Winchester, 7.15 p.m.

Annual Meeting of the Supplementary Veterinary Register Division at 7, Mansfield Street, Portland Place, London, W.1, 2.30 p.m.

Annual General Meeting of the Society of Practising Veterinary Surgeons in the Lecture Theatre, School of Veterinary Medicine, Madingley Road, Cambridge, 2.30 p.m.

19th (Thurs.). Annual General Meeting of the Dumfries and Galloway Division in the Station Hotel, Dumfries, 2 p.m.

Meeting of the East Midlands Division at the University School of Agriculture, Sutton Bonington, 2.30 p.m.

20th (Fri.). Annual General Meeting of the Midland

Counties Veterinary Association at Avoncroft Cattle Breeders Ltd., Sugarbrook.

Meeting of the B.S.A.V.A. South Eastern Region at the Royal Mount Ephraim Hotel, Tunbridge Wells, 8 p.m.

21st (Sat.). Annual Reunion and Dinner Dance of the Chiron Club at the Grand Atlantic Hotel, Weston-super-Mare, 7 p.m.

22nd (Sun.). R.V.C. Annual Motor Rally to Beachy Head.

25th (Wed.). R.C.V.S. Day.

117th Annual General Meeting of the Royal College of Veterinary Surgeons at 10, Red Lion Square, London, W.C.1, 3.45 p.m.

Annual General Meeting of the West of Scotland Division at the Veterinary Hospital, Garscube Estate, Bearsden, 2.15 p.m.

Annual General Meeting of the Sussex Veterinary Society at the Old Ship Hotel, Brighton, 2.30 p.m.

Annual General Meeting of the Society of Women Veterinary Surgeons at Imperial Chemical House, Millbank, London, S.W.1, 2.15 p.m.

Annual General Meeting of the Victoria Veterinary Benevolent Fund at 10, Red Lion Square, London, W.C.1, 4.15 p.m. (or immediately following the Annual General Meeting of the R.C.V.S.).

26th (Thurs.). Meeting of the Western Counties Veterinary Association at the Hotel Victoria, Newquay, 2.30 p.m.

27th (Fri.). Dance of the Herts. and Beds. Veterinary Association Ladies' Guild at the Dujon, Bedford, 8.30 p.m.

30th (Mon.). Meeting of the East Yorkshire Clinical Club at the Talbot Hotel, Malton

June

1st (Wed.). Meeting of the B.S.A.V.A. North Eastern Region at the Hotel Metropole, King Street, Leeds, 8 p.m.

3rd (Fri.). 168th Annual Ball of the R.V.C. Students' Union Society at the Park Lane Hotel, Piccadilly, W.1, 8 p.m.

8th (Wed.). A General Meeting of the South Wales Division at the Caswell Bay Hotel, Mumbles, Swansea, 2.15 p.m.

10th (Fri.). Annual Dinner of the R.A.V.C. Officer's Club at the Naval and Military Club, 94, Piccadilly, London, W.1.

11th (Sat.). Annual Reunion Dinner of the R.V.C. 1952 Club at Ye Miller of Mansfield, Goring, 7 p.m.

25th (Sat.). Meeting of the North West Region of the B.S.A.V.A. at the Conservative Club, Market Street, Wigan, 7.30 p.m.

July

6th (Wed.). Meeting of the Technical Development Committee of the B.V.A., at 7, Mansfield Street, 10.30 a.m.

20th, 21st and 22nd (Wed., Thurs. and Fri.). B.V.A. Committee and Council Meetings in London.

August 28th to September 3rd. 78th Annual Congress of the British Veterinary Association in Glasgow.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Dumfries. Carsegowan Farm, New Abbey (May 5).

Gloucs. Pound Farm, Taynton, Newent (May 3).

Kirkcudbright. Blackcraig Farm, Borgue (May 3).

Wilts. Eastleigh Court Farm, Bishopstrow, Warminster (May 5).

Foot-and-Mouth Disease

London. Ellenmeade Farm, Totteridge, N.20 (May 6); Totteridge Park Farm, Totteridge Lane, Totteridge, N.20 (May 8).

Sussex. Clapham Farm, Clapham, Worthing (May 4).

Fowl Pest

Beds. Caves Lane Allotments; Sewell Farm, Sewell, Dunstable (May 3); Church Farm, Stanbridge, Leighton Buzzard (May 4); Cow Lane, Edlesborough, Dunstable (May 6).

Berks. 32A, Rose Street, Wokingham (May 5).

Essex. Forest View Nursery, Avey Lane, High Beech, Waltham Abbey (May 3); Woodside, Thornwood, Epping (May 8).

Hants. Ford Farm, Woods Lane, Cliddesden, Basingstoke; Yew Tree Cottage, Binley, St. Mary Bourne, Andover (May 3); Taplin Farm, Hartley Witney, Basingstoke (May 4); London Hill Farm, Stockbridge (May 7); Grange Nursery, Botley, Southampton (May 8).

Hunts. The Holding, Tomersham Road, St. Ives (May 3).

Kent. Greenhill Farm, Otham, Maidstone (May 5).

Lincs. Barton Farm, Benington, Boxton (May 4); The Marsh, Benington, Boston (May 8).

Notts. 66, Kirklington Road, Southwell (May 5); Rufford Sawmills, Ollerton, Newark (May 7); Corner Farm, Rolleston, Newark; Oxton Newark (May 8).

Oxford. Village Farm, Bletchington; 14, Oxford Road, Bletchington; Sandhurst,' Oxford Street, Bletchington (May 3); Manor Farm, Bletchington; College Farm, Bletchington (May 4); Laurel Farm, Bletchington (May 5).

Surrey. 5, Bell Lane, Frogmore, Blackwater, Camberley (May 4).

Warwicks. 46, Alcester Road, Holywood, Birmingham; Talbot House, Barkers Lane, Wythall, Birmingham (May 3); Cottage Farm, Shustoke, Coleshill, Birmingham (May 4); Lion Farm, Dunchurch, Rugby (May 5).

Worcs. The Orchard, The Shrubbery, Kidderminster (May 8).

Yorks. Hill Top Farm, Oakworth, Keighley (May 5); 1, Bridge Street, Oakworth, Keighley (May 8).

Swine Fever

Ches. Chorley Green Farm, Chorley, Nantwich (May 3).

Kent. Oaklands Farm, Smarden, Ashford (May 5).

Somerset. Lower Farm, Westcombe, Shepton Mallet (May 3).

Surrey. Luddington Farm, Stroude Road, Virginia Water (May 3).

Sussex. Horley Farm, Cocking Midhurst (May 4).

Letters to the Editor

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

SCIENTIFIC

Lymphatic Leukaemia (Leucosis) and the Adrenal Cortex

Sir,—Professor Haddow, in opening the discussion on "Some Tumours of Dogs and Cats of Comparative Veterinary and Human Interest" delivered by Cotchin at the 1959 Annual Congress of the B.V.A., made an interesting point about lymphatic leukaemia (lymphatic leucosis, "pseudo-Hodgkin's disease"):—

"Miss Joshua had made an observation about which she had consulted him at the time, namely that the removal of a node in a dog with lymphatic leukaemia was followed by a very remarkable and generalised regression of the lesions elsewhere, and that was an observation which he understood was not unique in cases of the kind which had been observed. They had tried to duplicate that experience in animal tumours in the mouse and rat, but with completely negative results."

One possible explanation for this generalised regression described in the dog may be an increased activity of the adrenal cortex following surgical removal of one node, hormonal influences leading to temporary regression of other nodes.

Harding and Owen (1956) described a rapid regression of the muscle swelling and general clinical improvement in a case of eosinophilic myositis in an Alsatian bitch (second attack). This regression followed anaesthesia with thiopentone sodium and biopsy of the masseter and biceps femoris muscles. This dramatic clinical improvement in which the eosinophil count fell from 11,470 per cu. mm. to 7,740 per cu. mm. in less than 24 hours appeared to stem from the anaesthesia and the operation, recovery from both of which was normal and uneventful. This observation led to speculation as to the possible mechanism of the response. It is known that stress results in the stimulation of the adrenal cortex, and that the intramuscular injection of the adrenocorticotrophic hormone (ACTH) into normal dogs results in an eosinopenia (Martin, Skillen & Deubler, 1954). Some effect on the adrenal gland was therefore considered a possible explanation. ACTH was used for treating the third attack suffered by this dog. The injection was given on the day that marked swelling of the head was observed, and in 3 hours the dog appeared to be almost normal. Thus anaesthesia and biopsy in one attack and administration of ACTH in another attack produced regressions in both cases.

Similarly, regressions in lymphatic leukosis in the dog have been produced by biopsy (removal of a node), irradiation of a node under general anaesthesia (Douglas, 1960), or by administration of cortisone. Clover (1958) and Irfan (1958) describe the effect caused by the latter. In Irfan's case, however, 1.5 ml. daily doses of Prednisolone (Delta Cortril) administered for 53 days resulted only in temporary clinical improvement with no reduction in size of the lymph nodes. Subcutaneous injection of cortisone in the normal dog produces a lymphopenia (Reinhardt, Aron & Li, 1944), and the hypothesis is usually accepted that the thymus, lymph nodes and white blood corpuscles are under the hormonal influence of the adrenal cortex.

Regression of lymphosarcomata in mice was produced by administration of adreno-cortical hormones (Heilman & Kendall, 1944), but the removal of a lymph node in the rat and mouse gave negative results as reported by Haddow (1959). It is possible that the amount of stress produced by the removal of a lymph node in the rat or mouse is minimal and not enough to stimulate the adrenal cortex sufficiently to influence the remaining tumour tissue. Stress, or the injection of corticotrophin, in the rat, result in the disappearance of lipid from the zona fasciculata (Symington, 1960). Subjecting these animals to greater stress would be of interest. It would also be helpful to record the effects of a single lymph node removal from a larger number of affected dogs, as regression does not occur in all cases. This should include details of the anaesthesia employed and the effects on the w.b.c. count. Recurrence following any regression produced could be treated with cortisone and the effects compared.

It is not certain whether spontaneous regression of all nodes ever occurs in the dog. Pugh (1960) has on several occasions seen spontaneous regression of localised nodes. Therapeutic assessment in this condition is quite difficult and as Cotchin (1959) remarks, it is not known whether every untreated case of lymphatic leukosis necessarily runs a fatal course. In our present state of knowledge, however, the prognosis of the condition remains very poor.

Yours faithfully,

L. N. OWEN.

Department of Veterinary Clinical Studies,
School of Veterinary Science,
Madingley Road,
Cambridge.

April 30th, 1960.

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GENERAL

Warfarin Poisoning at Derby Stadium

Sir,—On reading the paper (*Vet. Rec.* **72.** 102) I was astonished to see that the authors concluded warfarin poisoning from their reported findings.

Firstly, there were no direct positive findings for this conclusion. The prothrombin time, which could be one of the indications, was only performed after vitamin K administration, and was normal as would be expected. Further, there was no information about any anaemia or any minor bleeding episodes (blood in the faeces, haematuria, etc.) between trials, which would be expected if warfarin were present. The report also lacked information on platelet counts and tests for fibrinolysis, which must be considered standard information when bleeding tendencies are investigated. In this connexion it might be of interest to mention that 4 of the cases referred to our Department suspected of warfarin poisoning during the 2 last years, appeared to be thrombocytopenias.

The diagnosis was, apparently, made on basis of the autopsy findings and a theoretical consideration about the contamination of the biscuit meal. Concerning the autopsy it is not stated whether the fluid blood contained fibrinogen or not. Fibrinolysis or hypoxia could as well be the cause of fluidity as derangement of the clotting mechanism proper. Neither were the other autopsy findings specific for warfarin poisoning. The statement by the authors, "this non-clotting of blood combined with massive haemorrhages throughout most of the body can best be summarised as a 'bloody mess' and we submit that it is absolutely diagnostic of warfarin poisoning particularly when considered in combination with the stress of racing," cannot be accepted unless it is shown in addition that the factors prothrombin, proconvertin, Stuart factor and haemofilia B factor are reduced, together with a good chance of warfarin uptake; or the direct demonstration of the poison.

In this case none of these requirements were present. The information given by Mr. Bateman (*Vet. Rec.* **72.** 192) minimises the probability of warfarin being the causative agent.

† See Correspondence - p. 525

In my opinion, more positive evidence should have been provided before publishing these fatalities as warfarin poisoning.

Yours faithfully,
HELGE STORMORKEN.

Dept. of Physiology,
Veterinary College of Norway,
Ullevalsvegen 72,
Oslo,
Norway.

April 28th, 1960.

Royal Society of Health Annual Congress

Sir,—The Annual Congress of the Royal Society of Health recently held at Torquay merits our appreciation of the hospitality of the Western Counties Division of the B.V.A. in arranging facilities for members of the profession attending the Congress to meet together.

Interest on the part of local Divisions is very valuable, and an inspiration to the secretary of the Veterinary Hygiene Section, Dr. J. G. Greatorex. It also encourages more members of the profession to gain an insight of the scope of the Society which is the largest of its kind in the world and embraces all aspects of public health work.

The Veterinary Hygiene Section deserves our fullest support, and the contribution we have already made and are equipped to make to public health, and the way we are concerned at all stages in the production of animal products, must be kept before the public.

It is easy to forget that to stand still in these matters may allow others to usurp our position, and at the present time it is necessary to enlist all the support possible.

An annual subscription of £3 3s. which can be claimed against income tax, or a Congress fee of 15s., should not deter members from joining the Society and adding their support in maintaining our Veterinary Section.

Yours faithfully,
WM. TWEED.

Lynwood,
Tarvin,
Chester.

May 6th, 1960.

Lungworm Vaccine in the Field

Sir,—Correspondents in your columns have discussed recently the value of Dictol—lungworm (oral) vaccine—to the veterinary and farming communities. Following the extensive laboratory and field investigations by workers at Glasgow University the vaccine

was introduced commercially early in 1959. It is now possible to attempt an assessment of the first year's field use of this new type of immunisation procedure.

During the 1959 season, many tens of thousands of courses of Dictol lungworm vaccine were distributed commercially to veterinary surgeons in the British Isles. Following this, a number of enquiries were received concerning either the safety or efficacy of the vaccine, following its administration in the field. It is appreciated that the enquiries received may not represent absolutely the overall picture in this country, but, because of its relatively high cost, compared with other vaccines, and because of the novelty of this type of vaccine, it is felt that virtually all " complaints," at least those where the local veterinary surgeon felt there was any substance in the farmer's observations, were reported to us. It appears also, that due to these reasons the vaccine was used almost exclusively on farms with a previous history of husk, usually severe, with deaths, and invariably with a loss of condition in the young stock each year.

All reports were investigated; in almost all cases by a personal visit, and in several by more than one visit. In no case was there any relationship between these reports and any specific batch of vaccine, each batch usually consisting of several thousand doses.

Of the enquiries received a few were associated with reactions after vaccination, during the first 2 weeks after either dose. These were not significant, and other than some transient coughing were shown to be due to causes unrelated to vaccination. The others were associated with vaccinated calves at some time after they had been turned out to pasture, frequently at the time they were meeting a husk challenge. Of the farm investigations requested only 16 out of a total of about 4,000 farms appeared to have any substance. The other farms investigated mostly had transient coughing episodes, rapidly resolving, frequently before the farm was visited, or outbreaks of other types of pneumonia which were demonstrated when *post-mortem* examination allowed diagnosis. On some farms where apparent husk symptoms occurred in vaccinated animals, fever was present but streptomycin therapy resulted in a resolution of symptoms and fever within 24 to 48 hours, which would indicate the presence of a bacterial (probably *Pasteurella*) pneumonia. Of the 16 farms only 4 had major problems where we had any reason to consider that the vaccine had failed to exert its expected effect. Because other farms vaccinated with material from the same batches were known to have withstood a natural challenge specific factors on these farms are being investigated. In the other 12, there were odd individual animals dying with worms in their lungs on each farm, which could be explained either by biological variation in the capactiy of the individual to respond to an antigen, or by some animals being missed at the time of vaccination, a procedure frequently left to the farmer.

In summary, then, the majority of coughing symptoms in vaccinated animals resolved with no serious loss of condition or major problem to the farmer. Because of the clinical pictures seen we feel that other pneumonias, in particular so-called " cuffing " pneumonia, was probably playing a major rôle here, together with the transitory coughing seen after a vaccinated animal meets a heavy challenge. At the 16 farms mentioned above, in all cases where it was possible to examine animals *post mortem* " cuffing " pneumonia lesions were seen, of varying severity. Certainly in 2 of the 4 " problem " farms pneumonias other than husk were also playing a serious rôle. On one of these farms a pneumonic disease, diagnosed as " cuffing " pneumonia by the local veterinary surgeon was present at the time of vaccination. We believe that this may have influenced adversely the vaccination procedure. On some of the others severe " cuffing " pneumonia was present at the time the vaccinates met a husk challenge. This combination of stresses, we believe, may have prevented the development of a satisfactory anamnestic response. These farms, and these particular epidemiological aspects, are being investigated during this year.

It is interesting to note that although 1959 was a phenomenally dry year, the incidence of husk appears to have been very high in certain areas of the country. It also appears to us that the occurrence of other pneumonias in calves, in particular " cuffing " pneumonia, was widespread, although we are not sure whether this was an actual increase in incidence or merely an impression due to our particular interests. Clinically, however, husk and " cuffing " pneumonias appear to be easily confused and may also appear together in the same group of animals.

Although we have very little evidence to substantiate it we feel that sudden entry into a very high challenge pasture may in certain cases be undesirable. When calves which have been vaccinated meet a sudden very high intake of infective larvae as their *first* field experience of infection it may be that there is not sufficient time to develop the required degree of response. It is felt that some caution should be exercised where high challenge pastures are known to exist and that introduction on to such fields should be gradual. This state of affairs should exist only on certain farms and only during the first year of vaccination.

We have given above a brief review of the field experiences following the first year's use of an oral lungworm vaccine. All the evidence available indicates that the vaccine has proved, and is proving, a valuable means of controlling husk in the field and confirms the earlier investigations and trials already published.

Yours faithfully,

BRUCE V. JONES.
A. M. R. NELSON.

Veterinary Research Department,
Allen & Hanburys Ltd.,
Ware,
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May 3rd, 1960.